Electrical linear modules HME

FESTO

- Precise, backlash-free guidance
- Freely programmable position, speed and acceleration
- Great flexibility
- Motor controller SFC-LAC

reddot design award winner 2006

Electric linear modules HME

Key features

Range of applications

The electric linear module HME is ideal for use in automation applications where controlled end-position cushioning (gentle stopping), constant travel speed and positioning capability are important factors.

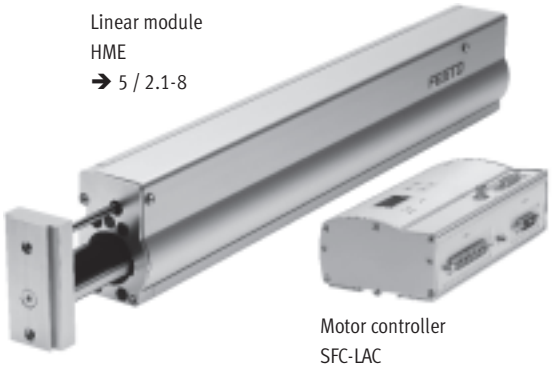
The linear module HME has the same interfaces on the yoke and basic profile as the pneumatic linear module HMP, and is fully compatible with modular handling and assembly systems including HMP adapter kits.

Special features

- With integrated linear motor
- Freely positionable
- Fast positioning times
- Extremely rigid basic profile
- Precise, backlash-free guidance
- Controlled starting and stopping (programmable ramp)
- Working loads up to 25 kg
- Freely programmable travel speeds up to 3 m/s
- High dynamic response and accuracy thanks to rotationally symmetrical linear motor
- No external magnetic fields
- Fixed-position long-coil system without moving energy supply with short magnetic rotor

Everything from a single source

Linear module
HME
➔ 5 / 2.1-8



Motor controller
SFC-LAC
➔ 5 / 2.1-23

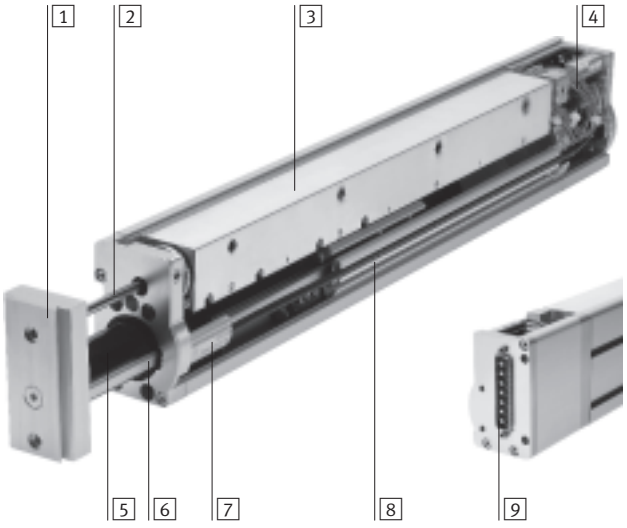
The linear module HME and motor controller SFC form one unit.

- Thanks to the protection class IP54, the SFC can be mounted close to the HME, either:
  - with centre supports
  - on an H-rail
- Only one cable is required between linear module HME and motor controller SFC
- Motor controller SFC available with or without control panel
- Up to 31 position sets
- Simple control via digital I/Os

Parameter assignment via:

- Control panel:
  - suitable for simple position sequences
- Configuration package FCT (Festo configuration tool):
  - with RS 232 interface
  - Windows-based PC user interface (Festo configuration tool)

The technology in detail



1 Yoke plate
2 Drive rod
3 Linear motor in aluminium housing
4 Electrical interface
5 Guide
6 Contactless displacement encoder
7 Measuring head
8 Integrated reference switch
9 Electrical interface

Electric linear modules HME

Key features

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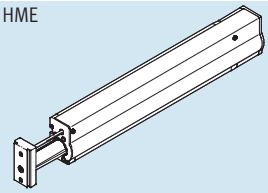
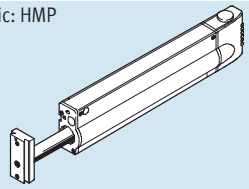
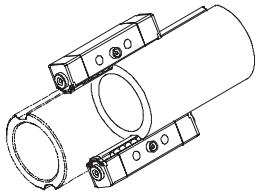
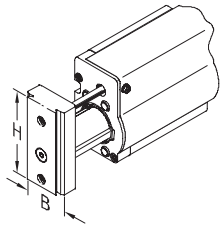
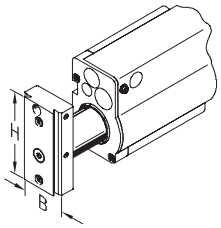
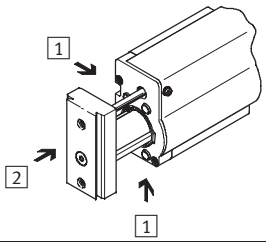
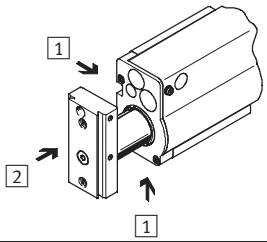
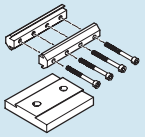
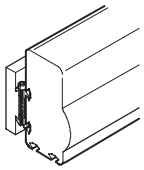
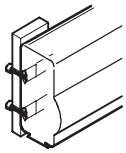
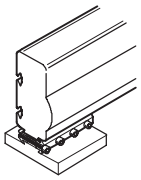
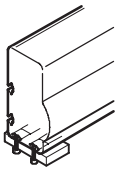
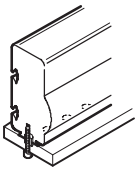
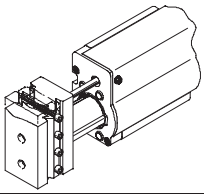
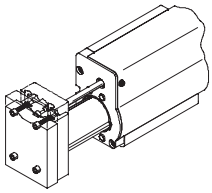
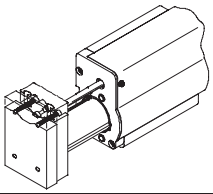
Comparison between electric linear module HME and pneumatic linear module HMP

	Electric: HME	Pneumatic: HMP
		
Advantages		
	• Controlled starting and stopping • Constant and precise speed up to 3 m/s • Flexible positioning without mechanical aids • Programmable positioning profile	• High feed force
Guide		
• Preloaded, backlash-free, precise and rigid recirculating ball bearing guide • High load capacity (forces and torques)		
Dimensions		
• Identical width and height dimensions Type / Width (W) / x / Height (H) HME/HMP-16: 34 x 85 mm HME/HMP-25: 40 x 110 mm		
Interfaces		
• Identical mounting and attachment options 1 Attachment surfaces: Attached using slot nuts or dovetail connections 2 Mounting surfaces: Direct attachment of loads and devices via threaded holes in the yoke plate, dovetail connections or through-holes		
Technical data		
Size [mm]	16, 25	16, 20, 25, 32
Stroke [mm]	100 ... 400	50 ... 400
Max. speed [m/s]	3	1.2
Repetition accuracy at end positions [mm]	±0.015	0.01
Intermediate positions	Any	With mid-position module, up to two positions

Electric linear modules HME

Key features

Mounting and mounting options			
Mounting options	Dovetail mounting using connecting kit HAVB 	Direct attachment with screws and NST slot nuts 	Direct attachment with screws and centring sleeves ZBH 
Mounting surfaces			
On the side of the basic profile	HME-16/-25 	HME-16/-25 	
On the underside of the basic profile	HME-16/-25 	HME-25 	HME-16 
On the yoke plate	HME-16/-25 	HME-25 	HMP-16/-25 

Note

The dynamic response and accuracy of the linear module HME depends on the mounting (rigidity) and temperature stresses (heat concentration).

Electric linear modules HME

System example

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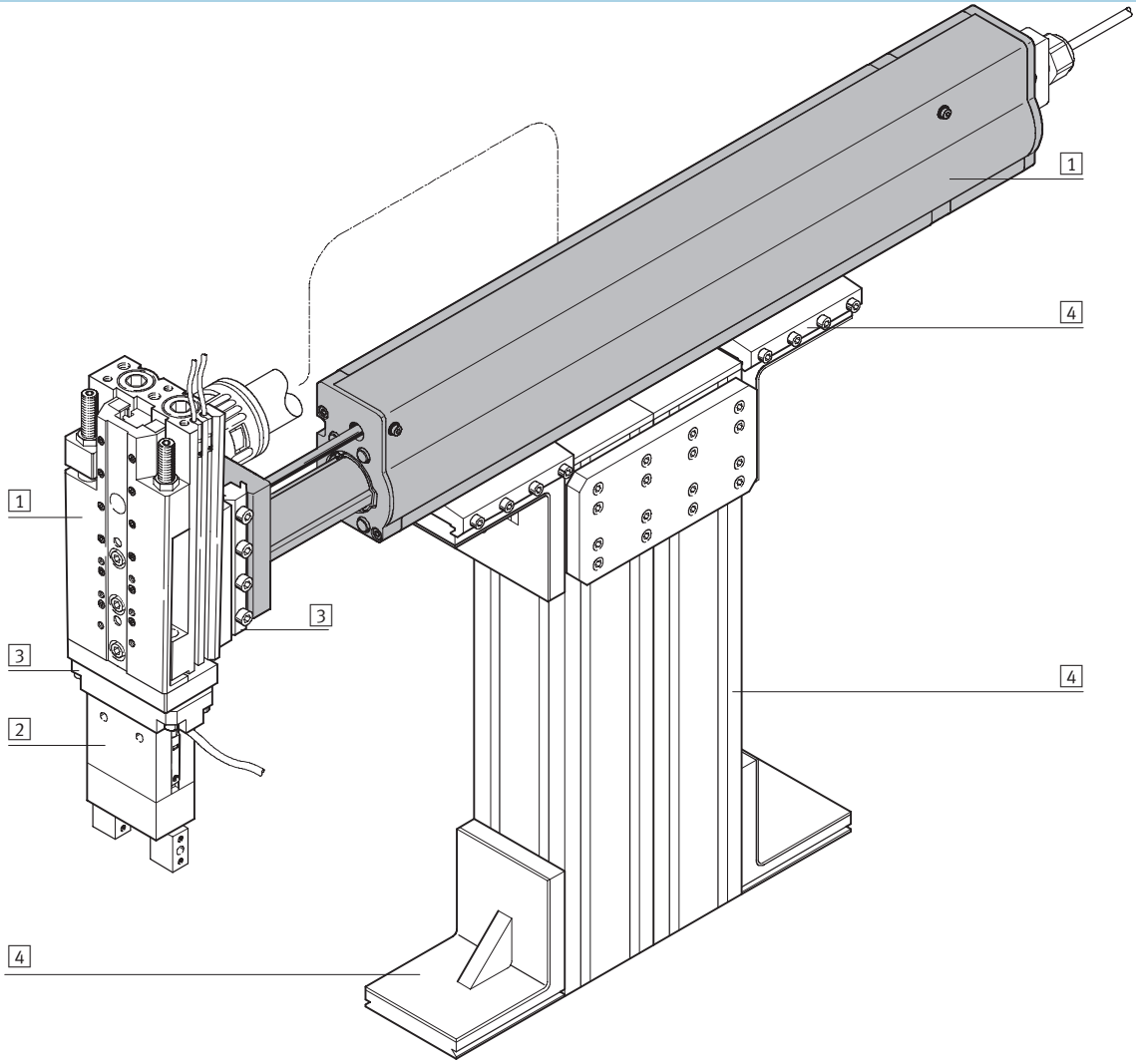
System product for handling and assembly technology



System elements and accessories			
		Brief description	**➔ Page**
1	Drives and axes	Wide range of combinations possible within handling and assembly technology	Volume 1
2	Gripper	Wide range of variations possible within handling and assembly technology	Volume 1
3	Adapter	For drive/drive and drive/gripper combinations	Volume 5
4	Basic mounting components	Profiles and profile connectors as well as profile/drive connectors	Volume 5
–	Installation components	For manageable and secure guidance of electrical cables and tubing	Volume 5
–	Motors	Servo and stepper motors, with or without gearing	Volume 5

Electric linear modules HME

Peripherals overview

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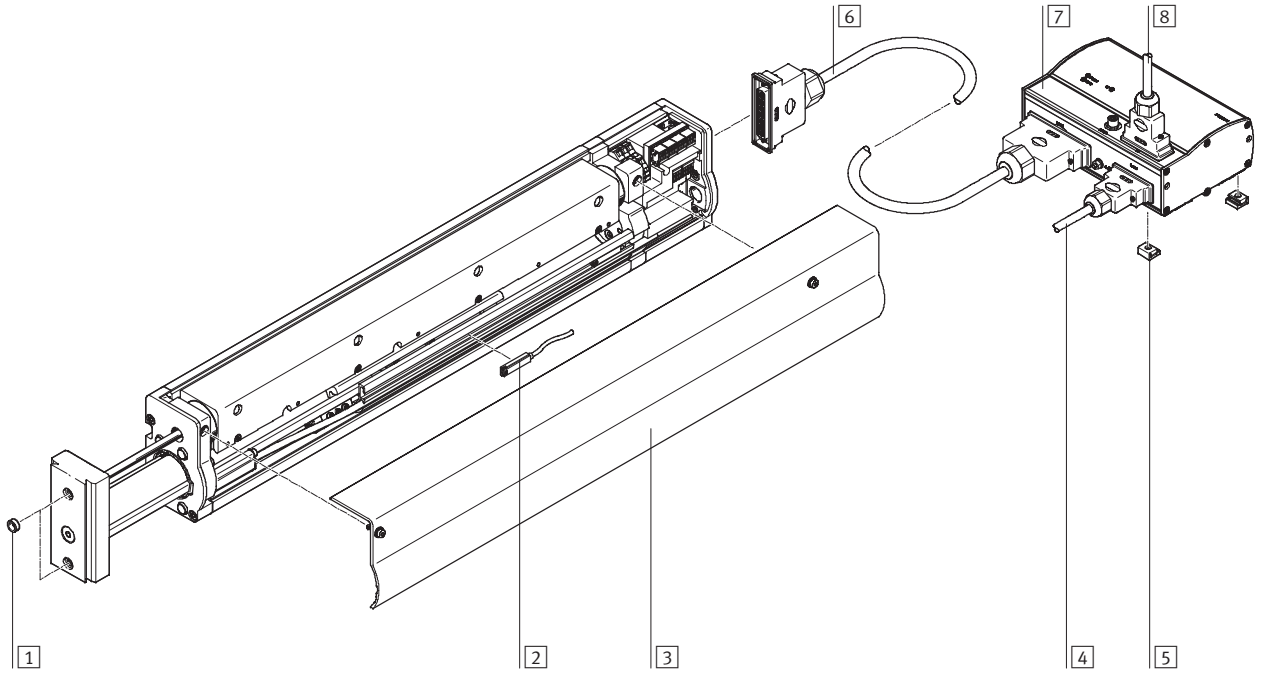
Size 16/25

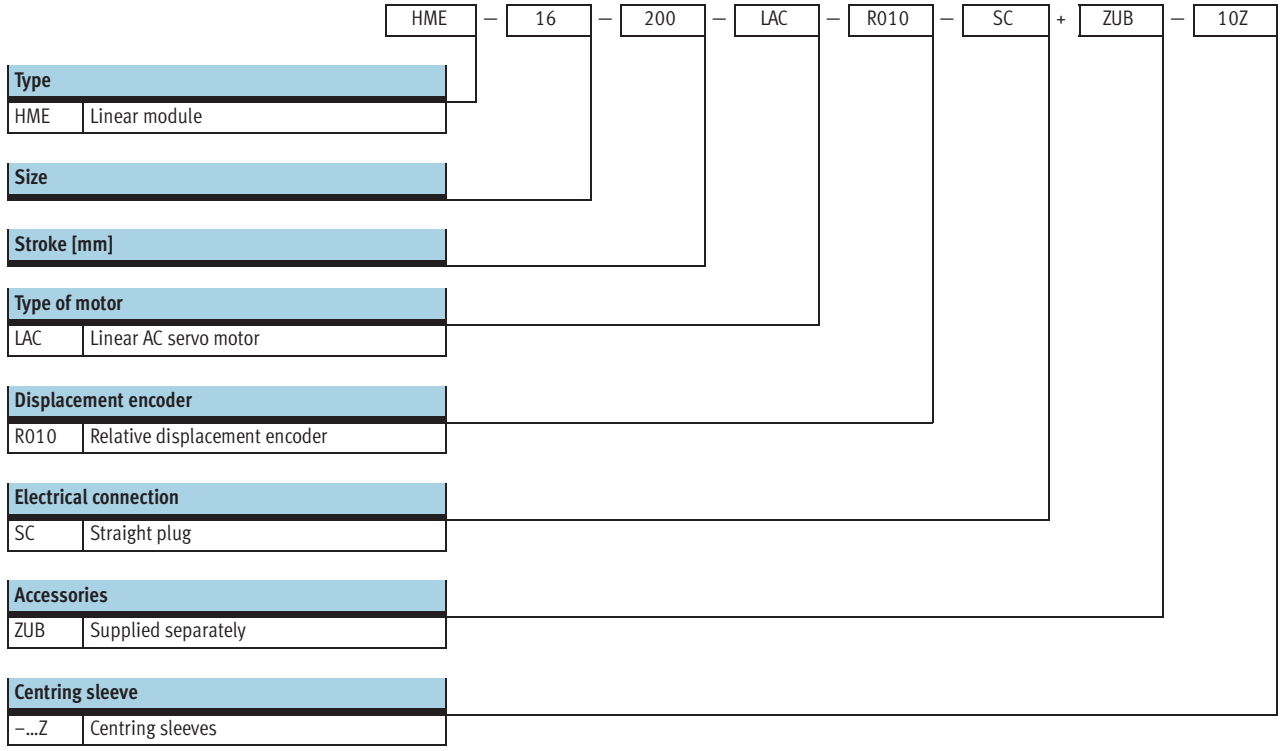


Accessories

		Brief description	→ Page
1	Centring sleeve ZBH	– For centring loads and attachment components	5 / 2.1-21
2	Proximity sensor SME-8	– For referencing the linear module. (The proximity sensor is fitted and adjusted upon delivery of the linear module)	–
3	Housing cover	– With cover: protection class IP40 – Easy to remove for maintenance	–
4	Supply cable KPWR	Power supply cable for load and logic supply	5 / 2.1-27
5	Centre supports MUP	– For mounting motor controller – Motor controller can also be mounted on H-rail	5 / 2.1-27
6	Motor cable KMTR	Connecting cable between motor and motor controller	5 / 2.1-27
7	Motor controller SFC	For parameterising and positioning the linear module	5 / 2.1-23
8	Control cable KES	Cable for I/O connection to any controller	5 / 2.1-27

Electric linear modules HME

Type codes



Electric linear modules HME

Technical data

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Size
16 and 25

Stroke length
100 ... 400 mm

www.festo.com/en/
Spare_parts_service

Note

All values are based on a normal temperature of 23 °C.
Dynamic response and accuracy depend on the mounting (rigidity) and temperature stresses (heat concentration).

General technical data									
Size			16			25			
Stroke			100	200	320	100	200	320	400
Mechanical									
Drive unit operating mode			Yoke						
Guide			Recirculating ball bearing guide						
Constructional design			Handling module with guide						
Mode of operation			Electrical linear direct drive						
Type of mounting	Linear module		With female thread and centring sleeve						
			With dovetail connection						
			With slot nut strip						
Type of mounting	Attachments on yoke plate		With female thread and centring sleeve						
			With dovetail connection						
			With through-hole and centring sleeve						
			Size 25 via slot nut strip						
Mounting position			Horizontal (vertical on request)						
Stroke		[mm]	100	200	320	100	200	320	400
Max. effective load (horizontal operation)[1]		[kg]	10	8	4	25	25	22	19
Max. speed		[m/s]	3						
Repetition accuracy		[mm]	±0.015						
Electric									
Type of motor			Linear AC servo motor						
Displacement encoder			Relative measuring, magnetic, incremental						
Link voltage		[V]	48						
Peak feed force[2]		[N]	248	179	179	257	257	257	257
Continuous feed force[2]		[N]	42	42	45	57	73	69	74
Peak motor current		[A]	28.5	20.5	20.5	28.5	28.5	28.5	28.5
Nominal motor current		[A]	4.8	4.8	5.2	6.3	8.1	7.6	8.2
Nominal motor power[2]		[W]	127	127	134	171	221	209	223
Magnetic radiation			None						

1) With use of maximum stroke. Higher loads on request
2) Disregarding friction

Electric linear modules HME

Technical data

FESTO

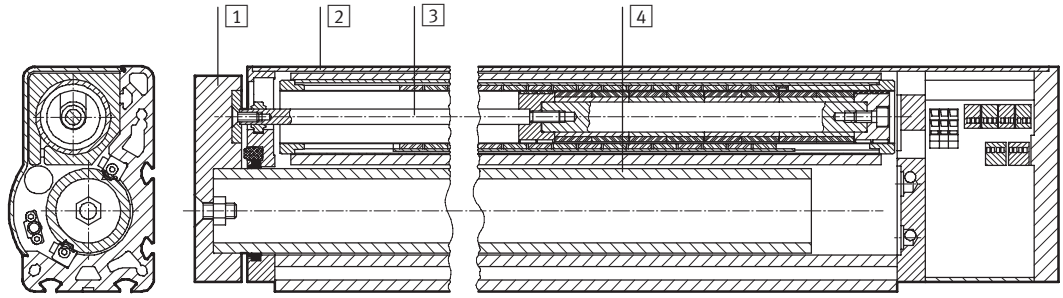
Operating and environmental conditions		
Ambient temperature[1]	[°C]	0 ... +40
Max. motor temperature	[°C]	70
Normal temperature[2]	[°C]	23
Temperature monitoring		Shuts down if motor overheats
Protection class		IP40
CE symbol (see conformity declaration)		In accordance with EU EMC directive
Relubrication intervals of guide components	[km]	2,500
Corrosion resistance class CRC[3]		2

1) Note operating range of proximity sensors
2) Unless otherwise stated, all values are based on normal temperature
3) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents

Weights [g]							
Size	16			25			
Stroke	100	200	320	100	200	320	400
Product weight	4,700	6,000	7,300	9,600	11,500	13,800	15,300
Moved dead weight	1,400	1,700	2,100	3,400	3,900	4,600	5,000

Materials

Sectional view



Linear module		
1	Yoke plate	Wrought aluminium alloy, anodised
2	Housing	Wrought aluminium alloy, anodised
3	Drive rod	High-alloy stainless steel
4	Guide barrel	Coated rolled steel

Electric linear modules HME

Technical data

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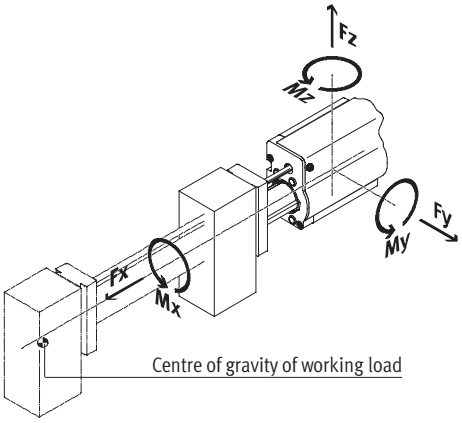
Dynamic characteristic load values of the bearing guide

The stated forces and torques are for a horizontal and vertical mounting position (see illustration).
In many cases the maximum loads occur on braking and with extended axis.

The calculated loads must be used in the following equation.
The equation must be satisfied statically and dynamically, in any operating situation. The effective direction of the torques and forces must be observed.
The torques and force directions shown are positive.



$$\frac{|-0.5*Fy+0.5*\sqrt{3}*Fz|}{Fu_{max.}}+\frac{|0.5*\sqrt{3}*Fy+0.5*Fz|}{Fv_{max.}}+\frac{|Mx|}{Mx_{max.}}+\frac{|-0.5*My+0.5*\sqrt{3}*Mz|}{Mu_{max.}}+\frac{|0.5*\sqrt{3}*My+0.5*Mz|}{Mv_{max.}}\leq 1$$

1 Loads resulting from the application: forces Fy, Fz and torques Mx, My, Mz

The forces and torques to be used in the above equation, caused by the load of the application, comprise the following:

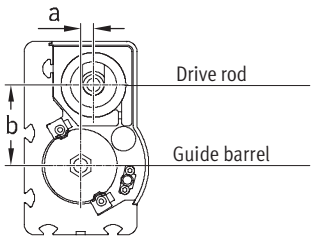
Composition of forces:
Fy = Fy5
Fz = Fz2 + Fz3 + Fz5

Composition of torques:
Mx = Mx3 + Mx5
My = My1 + My2 + My3 + My4 + My5
Mz = Mz1 + Mz4 + Mz5

1.1 Torques acting on the bearing guide due to maximum feed force

The stated values are maximum values resulting from the peak feed force.
They are independent of:
– stroke position
– inertia
and dependent on:
– direction of movement
– mounting position

	Extending – Accelerating / Retracting – Braking		Retracting – Accelerating / Extending – Braking	
	My1 [Nm]	Mz1 [Nm]	My1 [Nm]	Mz1 [Nm]
HME-16-100	9.2	–1.3	–9.2	1.3
HME-16-200/-320	6.7	–1	–6.7	1
HME-25	13	–2.1	–13	2.1



Dimensions	a [mm]	b [mm]
HME-16	5.4	37.2
HME-25	8	50.2

1.2 Forces and torques acting on the bearing guide due to dead weight

The stated values are maximum values in the extended condition.
They are independent of:
– inertia of the dead weight
and dependent on:
– stroke position
– mounting position

	My2 [Nm]	Fz2 [N]
HME-16-100	0.6	–9.8
HME-16-200	1.4	–12.5
HME-16-320	2.7	–15.7
HME-25-100	1.3	–22.1
HME-25-200	3.0	–26.9
HME-25-320	5.6	–32.7
HME-25-400	7.7	–36.6

Electric linear modules HME

Technical data

1.3 Forces and torques acting on the bearing guide due to the weight of the working load

Values to be determined:

Distances:
– X2, Y2 and Z2

Forces and torques due to weight:
– Fz3
– Mx3, My3

Due to inertia:
– My4, Mz4

Formulae for calculating forces and torques:

Fz3 = m x g

Fy3 = 0

Mx3 = Y2 x Fz3

My3 =(X1 + Hub + X2) x Fz3

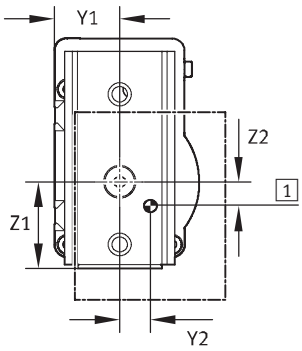
Mz3 = 0

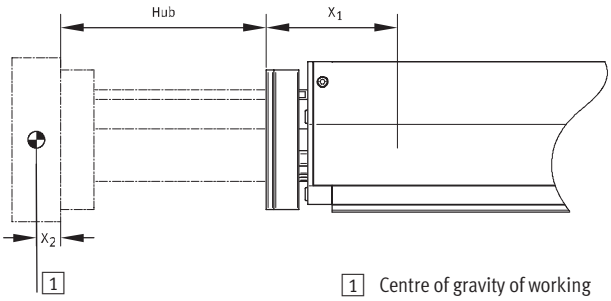
Mx4 = 0

My4 = Z2 x m x a

Mz4 = Y2 x m x a

m = Mass of working load
a = Acceleration
g = Acceleration due to gravity (9.81 m/s²)





1 Centre of gravity of working load

	Y1 [mm]	Z1 [mm]
HME-16	26	34.5
HME-25	35	43

	X1 [mm]
HME-16	119.3
HME-25	154

1.4 Forces and torques acting on the bearing guide due to forces from the application (other drives)

For example:
– Mounting forces
– Forces from attached rotary drives

Fy5 = Mounting force acts at right angles to working load

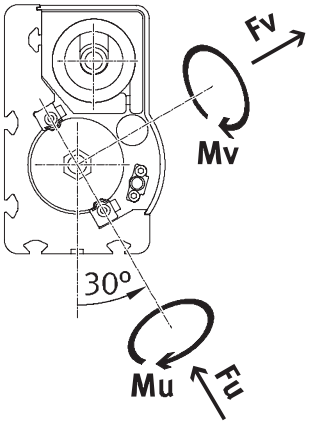
Fz5 = Mounting force presses additionally on working load

Mx5 = Attached rotary drive causes torque on the bearing guide

My5 = Torques due to Fz5

Mz5 = Torques due to Fy5

2 Maximum permitted load capacity of bearing guide[1)]



Size		16	25
$Fu_{max.}$	[N]	2,456	2,456
$Fv_{max.}$	[N]		
$Mx_{max.}$	[Nm]	42	60
$Mu_{max.}$	[Nm]	123	220
$Mv_{max.}$	[Nm]	123	220

1) After 5,000 km

Electric linear modules HME

Technical data

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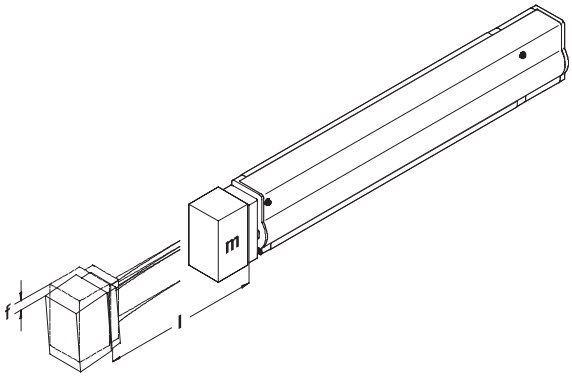
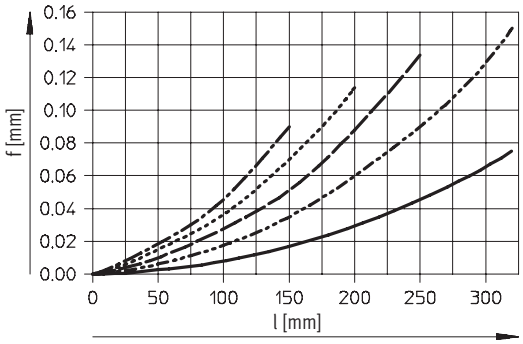
Deflection/deformation f as a function of the working load m and the position l (stroke)

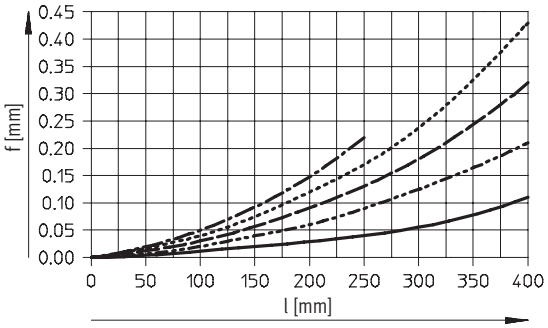


Size 16



- 2 kg
- 4 kg
- 6 kg
- 8 kg
- 10 kg

Size 25



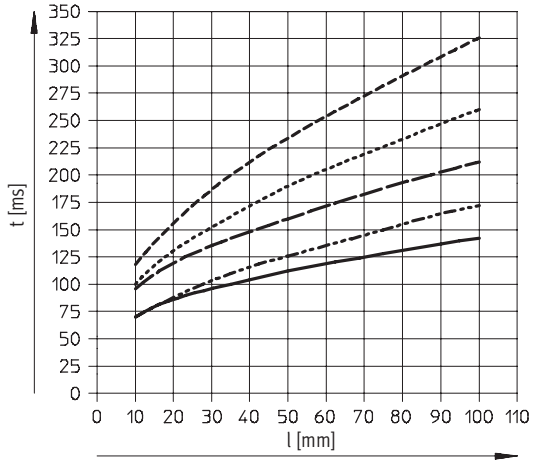
- 5 kg
- 10 kg
- 15 kg
- 20 kg
- 25 kg

Electric linear modules HME

Technical data

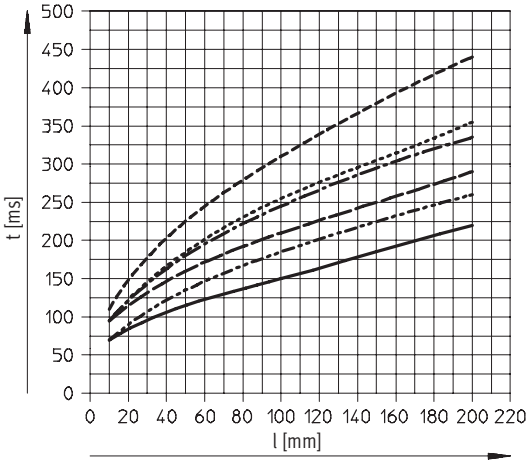
Positioning time t as a function of stroke l, working load M and duty cycle ED

HME-16-100



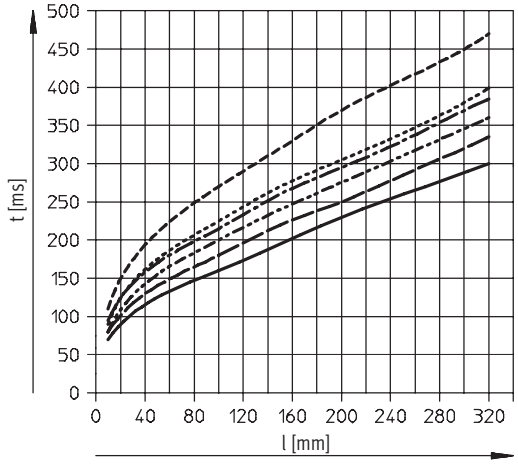
M 1kg, ED 25%
M 1kg, ED 75%
M 5kg, ED 25%
M 5kg, ED 75%
M 10kg, ED 25%
M 10kg, ED 75%

HME-16-200



M 1kg, ED 25%
M 1kg, ED 75%
M 4kg, ED 25%
M 4kg, ED 75%
M 8kg, ED 25%
M 8kg, ED 75%

HME-16-320



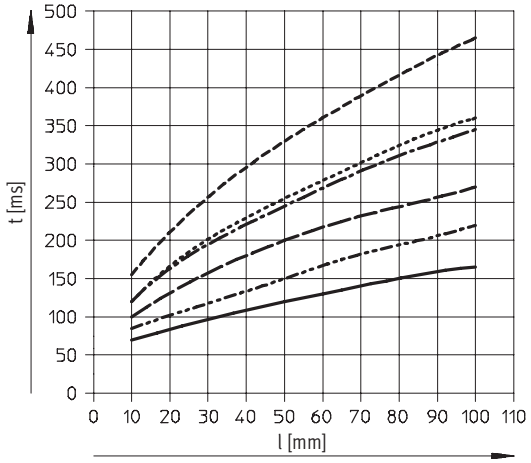
M 1kg, ED 25%
M 1kg, ED 75%
M 2kg, ED 25%
M 2kg, ED 75%
M 4kg, ED 25%
M 4kg, ED 75%

Electric linear modules HME

Technical data

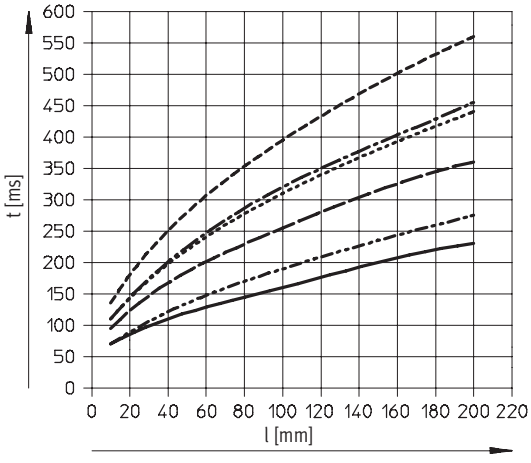
Positioning time t as a function of stroke l, working load M and duty cycle ED

HME-25-100



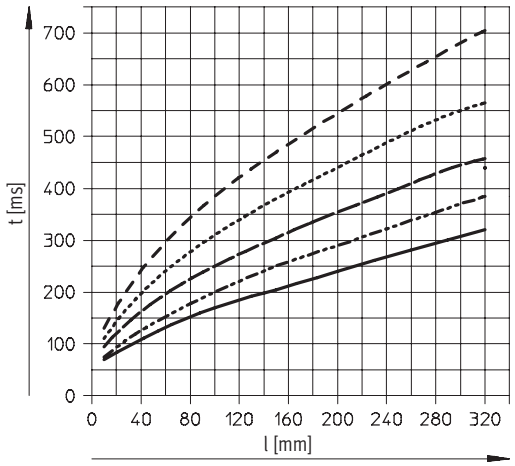
M 1kg, ED 25%
M 1kg, ED 75%
M 12.5kg, ED 25%
M 12.5kg, ED 75%
M 25kg, ED 25%
M 25kg, ED 75%

HME-25-200



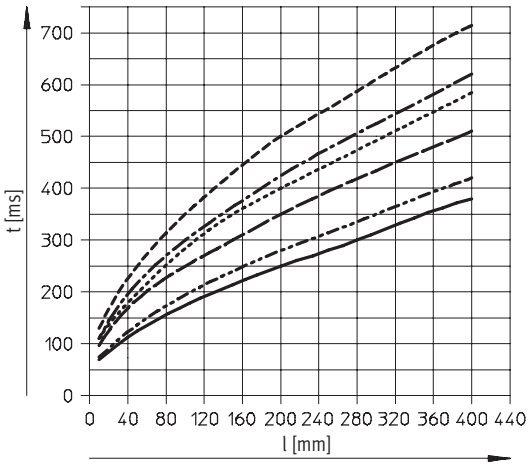
M 1kg, ED 25%
M 1kg, ED 75%
M 12.5kg, ED 25%
M 12.5kg, ED 75%
M 25kg, ED 25%
M 25kg, ED 75%

HME-25-320



M 1kg, ED 25%
M 1kg, ED 75%
M 11kg, ED 25%
M 11kg, ED 75%
M 22kg, ED 25%
M 22kg, ED 75%

HME-25-400



M 1kg, ED 25%
M 1kg, ED 75%
M 9.5kg, ED 25%
M 9.5kg, ED 75%
M 19kg, ED 25%
M 19kg, ED 75%

Electric linear modules HME

Technical data

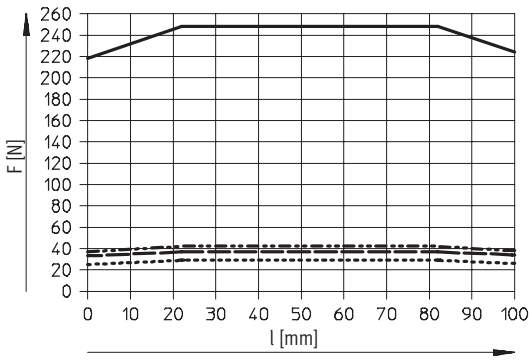
Feed force F as a function of stroke l

The graphs are based on theoretically determined values, without friction.

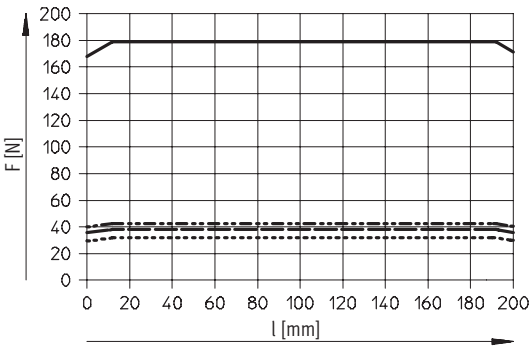
Peak feed force

Continuous feed force at ambient temperature:
- of 23 °C
- of 30 °C
- of 40 °C

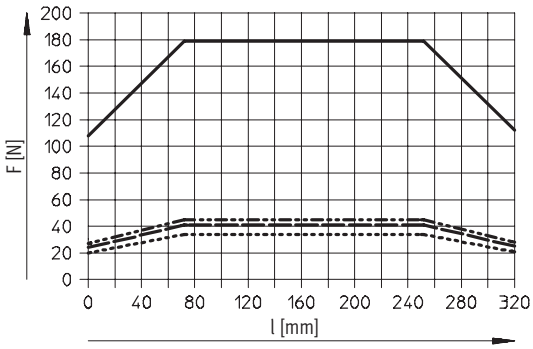
HME-16-100



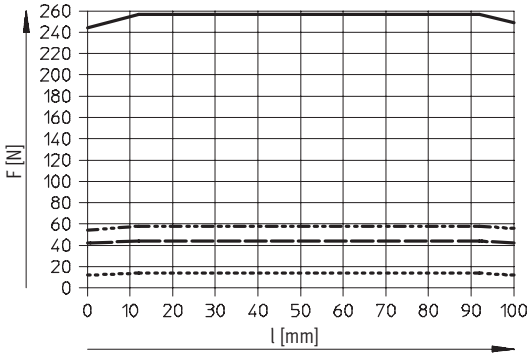
HME-16-200



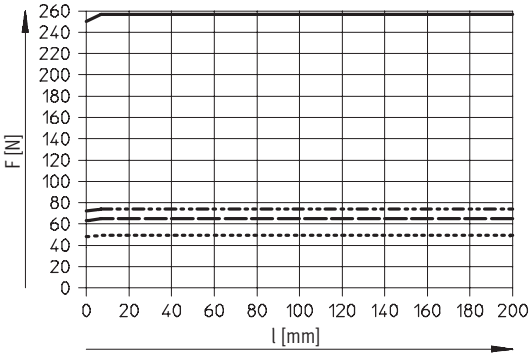
HME-16-320



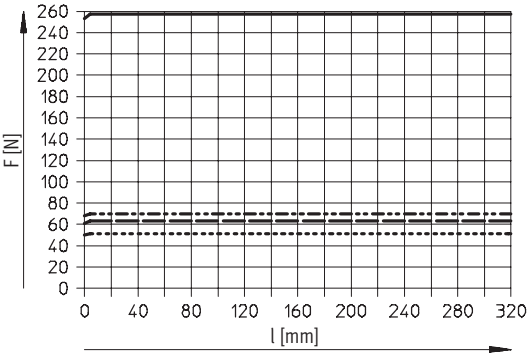
HME-25-100



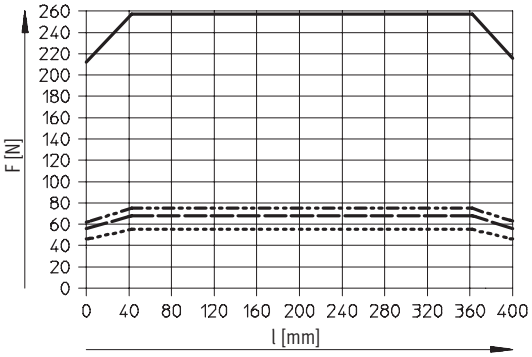
HME-25-200



HME-25-320



HME-25-400



Electric linear modules HME

Technical data

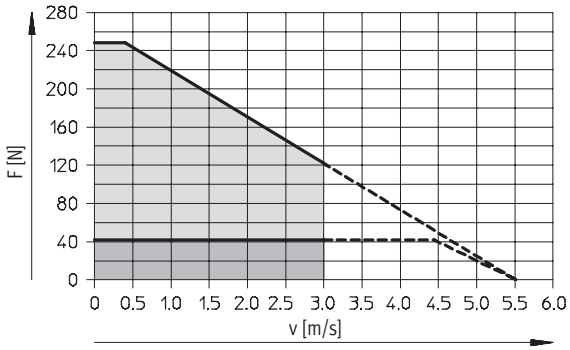
Feed force F as a function of speed v

The graphs are based on theoretically determined values under the following conditions:

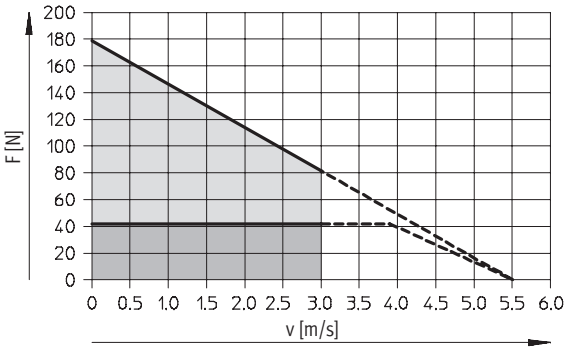
- Stroke centre of the linear module
- Friction disregarded
- Normal temperature of 23 °C
- Max. motor temperature of 70 °C

Peak feed force
Continuous feed force
Non-permissible range

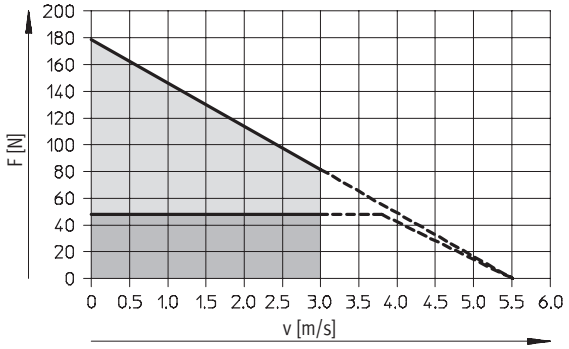
HME-16-100



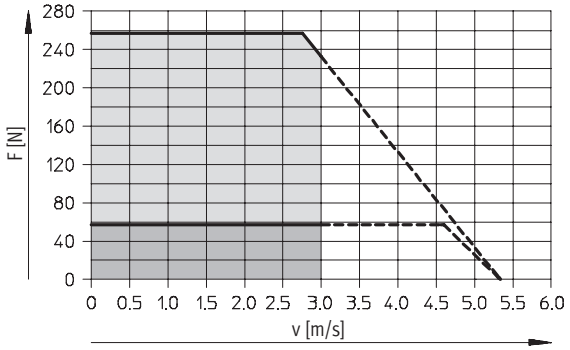
HME-16-200



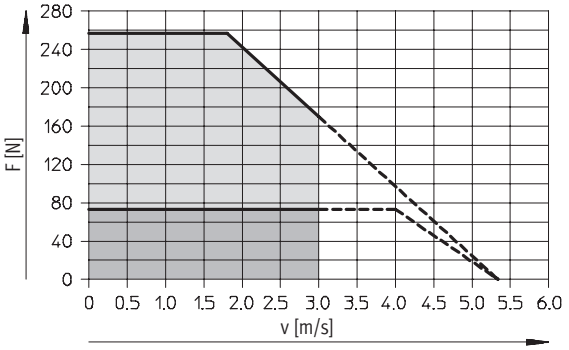
HME-16-320



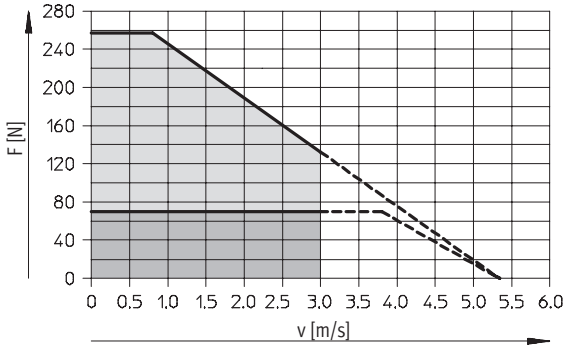
HME-25-100



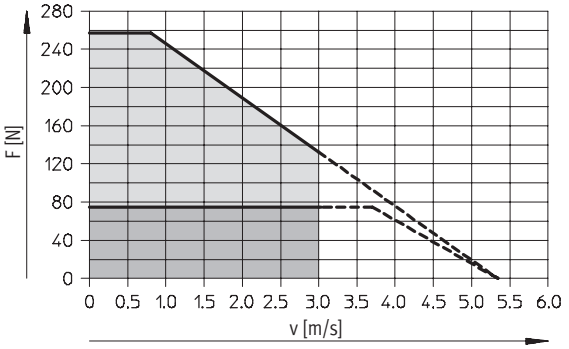
HME-25-200



HME-25-320



HME-25-400

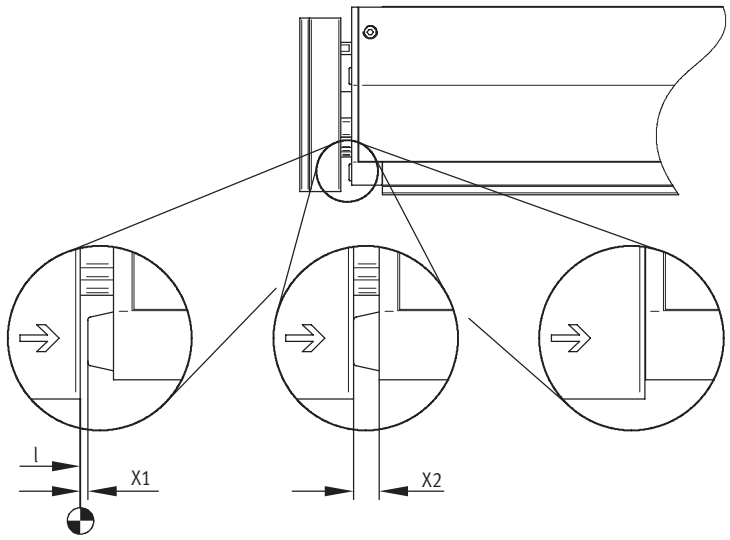


Electric linear modules HME

Technical data

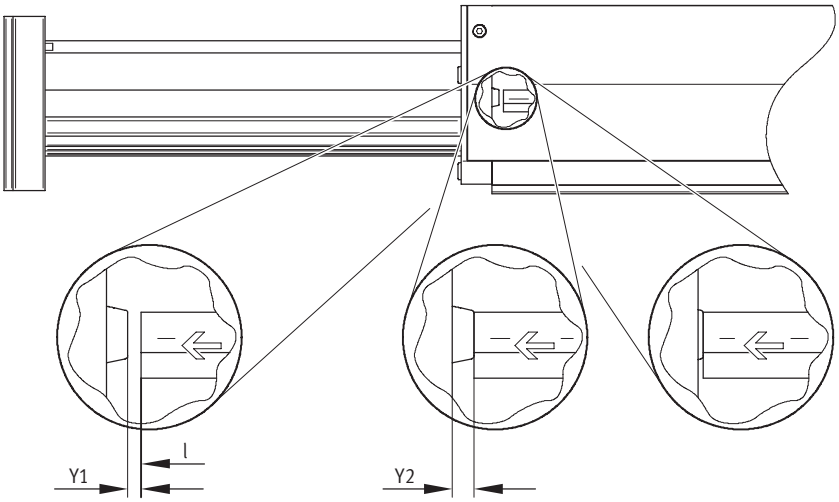
Stroke reserve and cushioning length		
Working stroke:	Stroke reserve:	Cushioning length:
The recommended, available operating range	The distance from the end positions of the working stroke to the buffers	Distance from buffer surface to mechanical end position

Linear module retracted



l = Working stroke
X1 = Stroke reserve
X2 = Cushioning length

Linear module extended



l = Working stroke
Y1 = Stroke reserve
Y2 = Cushioning length

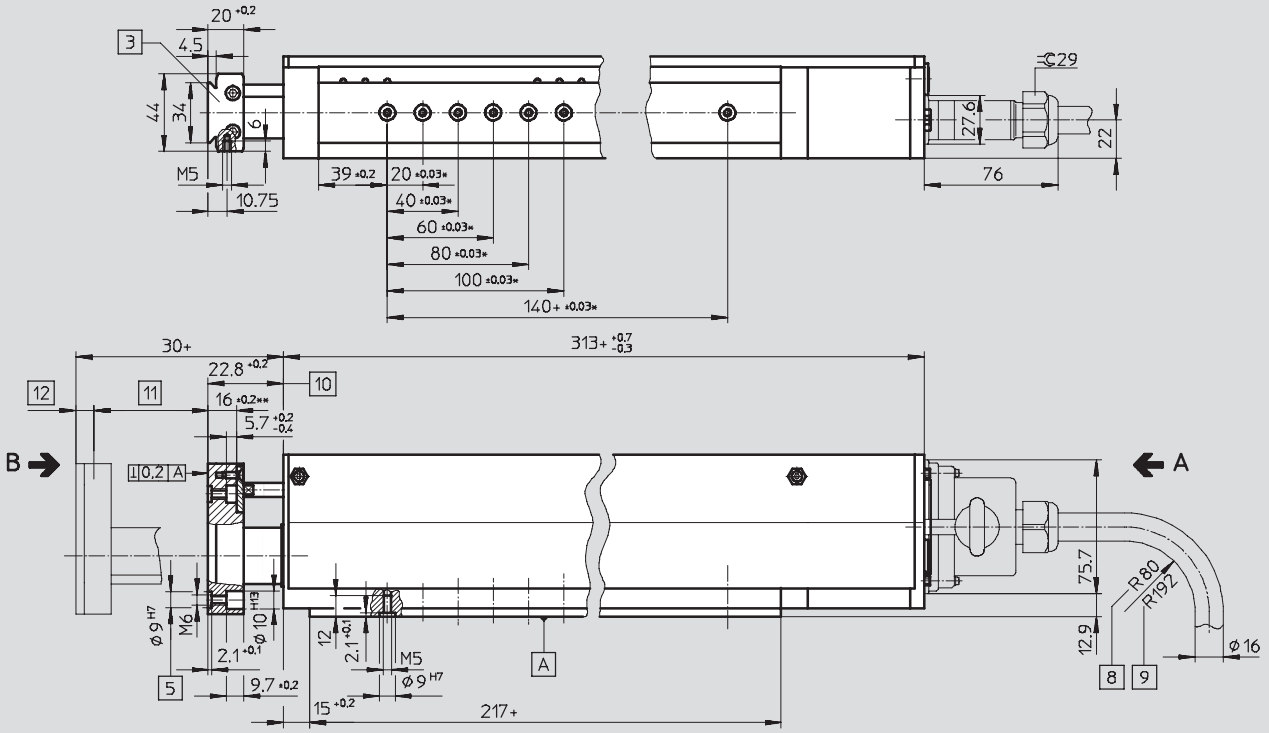
Size	Retracted		Extended	
	X1	X2	Y1	Y2
16	1 mm	1.8 mm	1 mm	3.5 mm
25	0.7 mm	1.8 mm	0.7 mm	4 mm

Electric linear modules HME

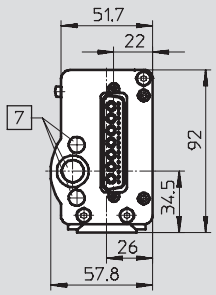
Technical data

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

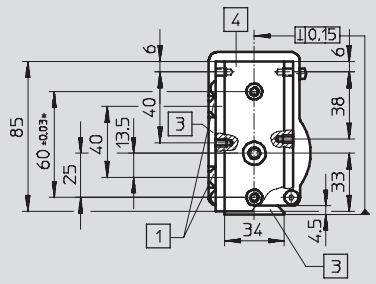
Size 16



View A



View B



1 2 mounting slots for slot nuts HMBN-5-2M5
3 Dovetail mounting option
4 The yoke plate must not be turned
5 Thread and centring hole for load attachment with centring sleeves ZBH-9. The adapter plate must be detached from the yoke plate in order to mount the working load
7 Cover
8 Static radius
9 Dynamic radius
10 Start working stroke (zero point)
11 Working stroke
12 Stroke reserve Y1 + Cushioning length Y2
➔ 5 / 2.1-17

* Tolerance for countersink ∅ 9 H7, for threaded hole ±0.2
** Max. screw-in depth

\+ = plus stroke length

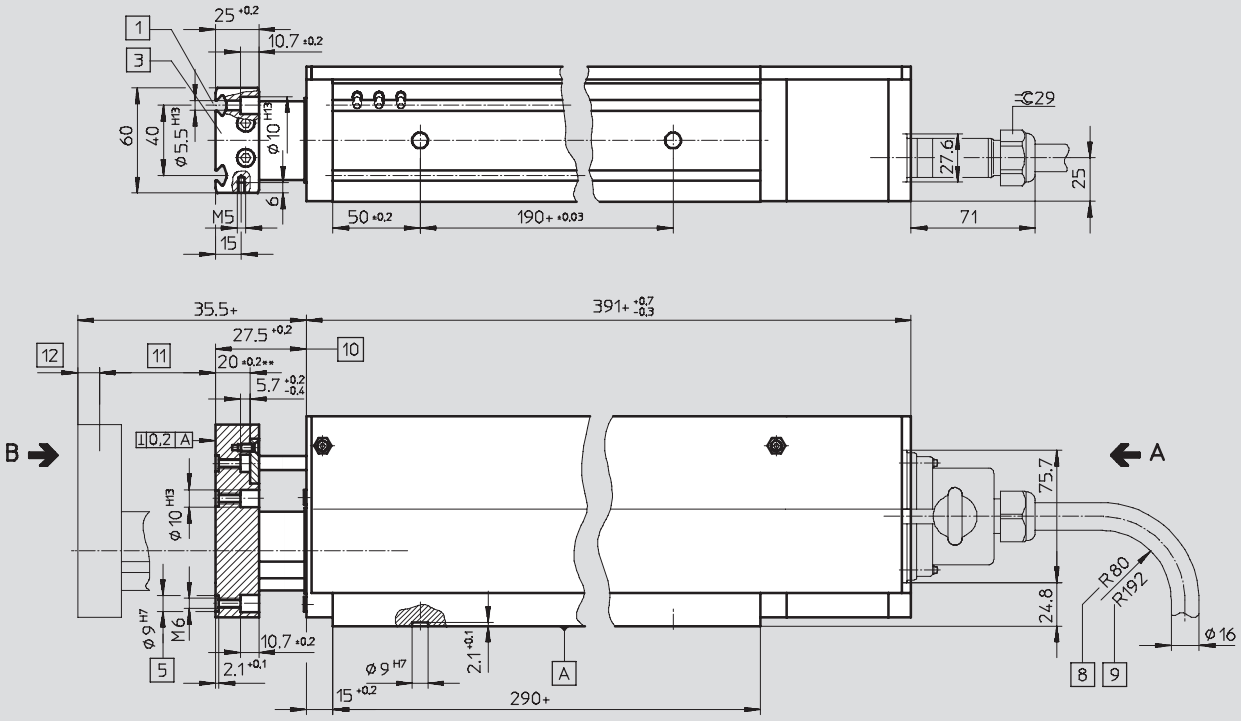
Electric linear modules HME

Technical data

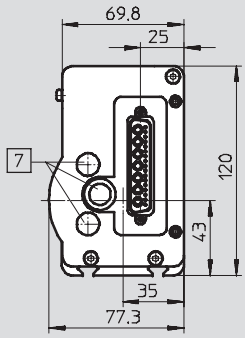
FESTO

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

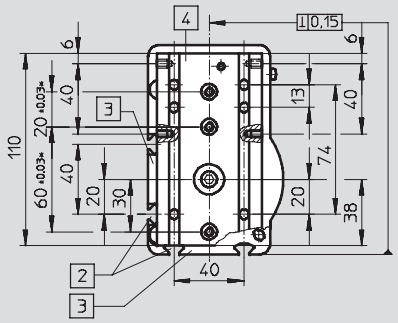
Size 25



View A



View B



1 2 mounting slots for slot nuts HMBN-5-2M5
2 4 mounting slots for slot nuts HMBN-5-2M5
3 Dovetail mounting option
4 The yoke plate must not be turned
5 Thread and centring hole for load attachment with centring sleeves ZBH-9. The adapter plate must be detached from the yoke plate in order to mount the working load
7 Cover
8 Static radius
9 Dynamic radius
10 Start working stroke (zero point)
11 Working stroke
12 Stroke reserve Y1 + Cushioning length Y2
➔ 5 / 2.1-17

* Tolerance for countersink ∅ 9 H7, for threaded hole ±0.2
** Max. screw-in depth
\+ = plus stroke length

Electric linear modules HME

Ordering data – Modular products

FESTO

M Mandatory data							O Options	
Module No.	**Drive function**	**Size**	**Stroke**	**Type of motor**	**Measuring principle displacement encoder**	**Electrical connection**	**Accessories**	**Centring sleeves**
539 981 539 982	HME	16 25	100 200 320 400	LAC	R010	SC		...Z
Ordering example								
539 982	**HME** –	**25** –	**400** –	**LAC** –	**R010** –	**SC**	**ZUB** –	**10Z**

Ordering table

Size		16	25	Condi-tions	Code		Enter code
M	Module No.	**539 981**	**539 982**				
	Constructional design	Electric-linear direct drive/handling module/guide			**HME**		HME
	Size	16	25		**-...**		
	Stroke [mm]	100	100		**-100**		
		200	200		**-200**		
		320	320		**-320**		
		–	400		**-400**		
	Type of motor	Linear AC servo motor			**-LAC**		-LAC
	Measuring principle displacement encoder	Relative measuring/magnetic/incremental/contactless			**-R010**		-R010
	Electrical connection	Straight plug			**-SC**		-SC
O	Accessories	Supplied separately			**ZUB-**		ZUB-
	Centring sleeves	10, 20 ... 90			**...Z**		

Transfer order code

	HME	–		–		–	LAC	–	R010	–	SC	ZUB	–	

Electric linear modules HME

Accessories

FESTO

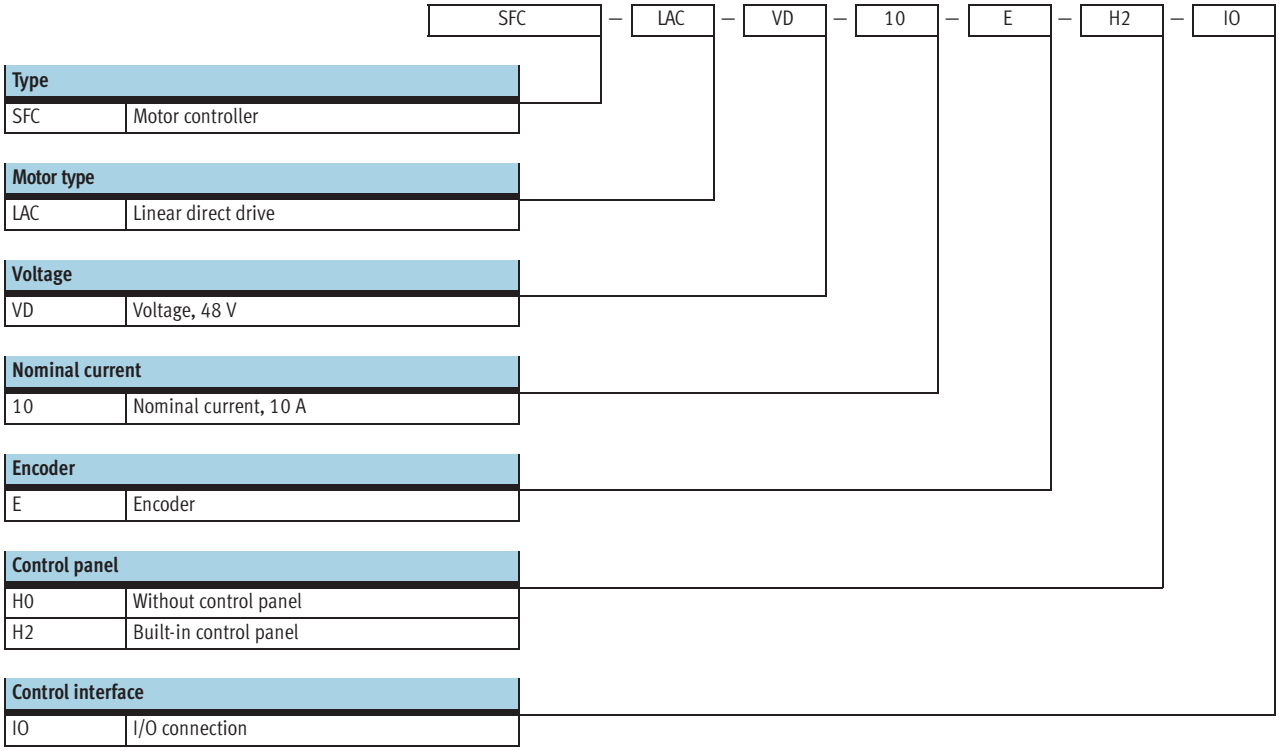
Ordering data

	For size [mm]	Remarks	Order code	Part No.	Type	PU[1]
Centring sleeve ZBH					Technical data → Volume 1	
	16, 25	For yoke plate	Z	**150 927**	**ZBH-9**	10

1) Packaging unit quantity

Motor controllers SFC-LAC

Type code



Motor controllers SFC-LAC

Technical data

General technical data			
Type		SFC-...-H0-IO	SFC-...-H2-IO
Operating mode		Adaptive status controller	
Position sensor		Encoder	
Encoder input		CAN bus	
Display		–	Full text display via graphic LCD display (128 x 64 pixels)
Control elements		–	4 keys
Process interfacing		I/O interface for 31 position sets and homing	
Number of digital logic inputs		8	
Number of digital logic outputs		4	
Mains filter		Integrated	
Type of mounting		H-rail, wall or surface bracket	
Product weight	[g]	1,200	

Electrical data		
General		
Rated output	[VA]	480
Parameterisation interface		RS232; 38 400 Baud
Max. link voltage	[V DC]	48
Peak power	[VA]	960
Peak current per phase, effective	[A]	15
Load supply		
Nominal voltage	[V DC]	48 +5/–10%
Nominal current	[A]	10
Peak current	[A]	20
Logic supply		
Nominal voltage	[V DC]	24 ±10%
Nominal current	[A]	0.5
Peak current	[A]	0.8
Max. current per output (digital logic outputs)	[A]	0.5

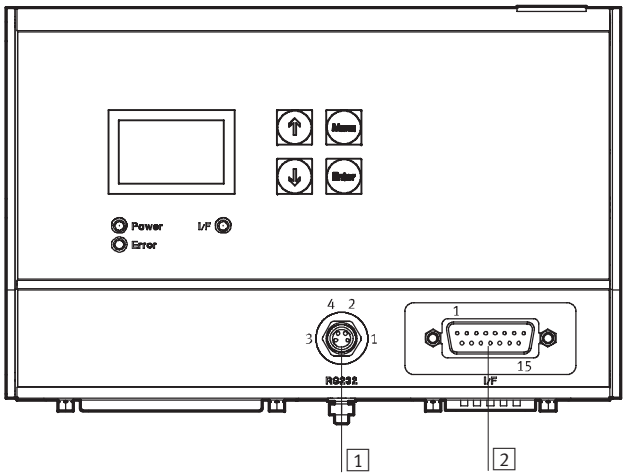
Motor controllers SFC-LAC

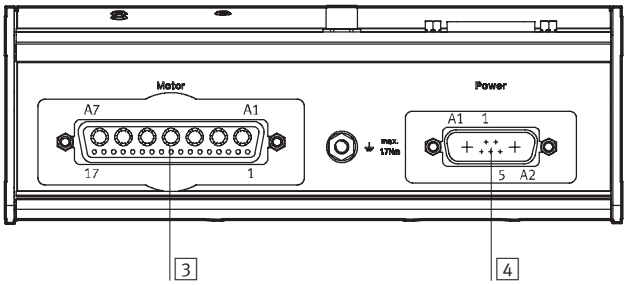
Technical data

FESTO

Operating and environmental conditions		
Digital logic outputs		Electrically isolated
Logic inputs		Electrically isolated
Specification, logic input		IEC 61131
Protection class		IP54
Vibration resistance		to DIN EN 60068-2-6
Shock resistance		to DIN EN 60068-2-27
Protective function		I^2t monitoring
		Current monitoring
		Voltage failure detection
		Lag error monitoring
		Software end-position detection
		Temperature monitoring
Ambient temperature	[°C]	0 ... +40
CE symbol (see conformity declaration)		In accordance with EU EMC directive
Relative air humidity	[%]	0 ... 95 (non-condensing)

Pin allocation





1 RS 232 interface, 4-pin M8 socket	
Pin	Function
1	0 V
2	Transmitted Data (TxD)
3	Received Data (RxD)
4	–

2 I/O interface, 15-pin Sub-D plug	
Pin	Function
1	24 V (supply for output)
2	Position set coding, bit 1
3	Position set coding, bit 2
4	Position set coding, bit 3
5	Position set coding, bit 4
6	Position set coding, bit 5
7	Stop bit
8	0 V
9	Enable bit
10	Start bit
11	MC
12	Ready
13	Acknowledge
14	Error
15	0 V

Motor controllers SFC-LAC

Technical data

FESTO

3 Motor interface, 24-pin plug	
Pin	Function
A1	String 1+
A2	String 1–
A3	String 2+
A4	0 V
A5	String 2–
A6	String 3+
A7	String 3–
1	24 V
2	–
3	–
4	CAN-H line
5	CAN-L line
6	CAN ground
7	–
8	–
9	–
10	–
11	–
12	–
13	–
14	–
15	–
16	0 V
17	–

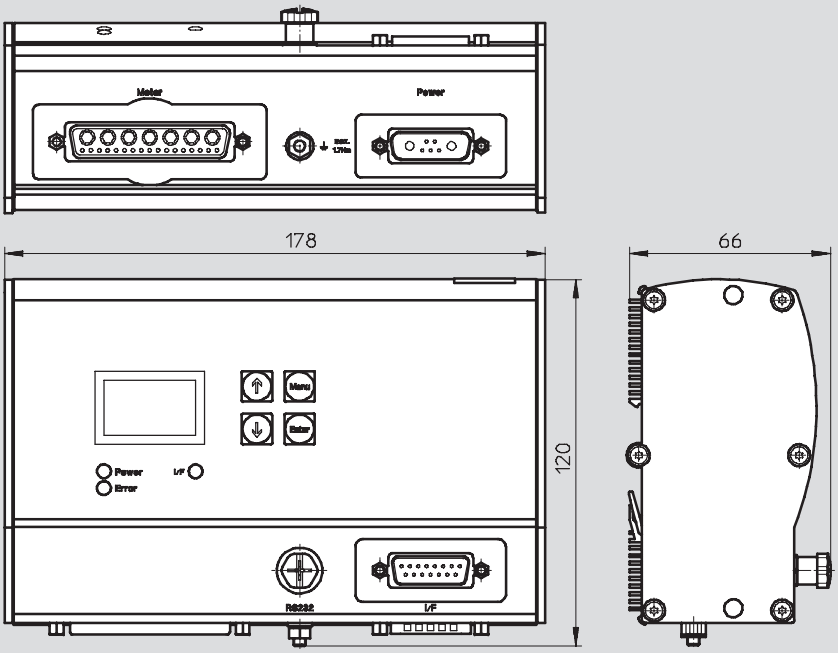
4 Power supply, 7-pin plug	
Pin	Function
A1	48 V (load)
A2	0 V (load)
1	24 V (logic)
2	0 V (logic)
3	–
4	PE
5	–

Motor controllers SFC-LAC

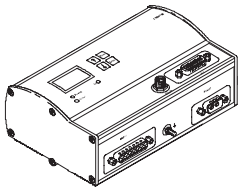
Technical data

Dimensions

Download CAD data ➔ **www.festo.com/en/engineering**

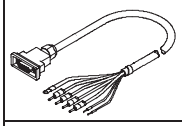
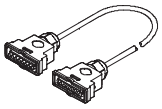
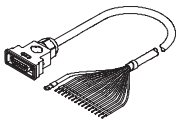
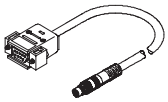
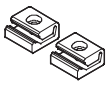


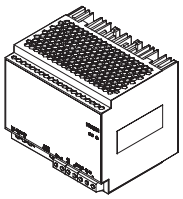
Ordering data

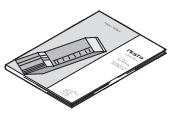
	Brief description	Part No.	Type
	Motor controller with I/O connection		
	Without control panel	**540 038**	**SFC-LAC-VD-10-E-H0-IO**
	With control panel	**540 039**	**SFC-LAC-VD-10-E-H2-IO**

Motor controllers SFC-LAC

Accessories

Ordering data				
	Brief description	Cable length [m]	Part No.	Type
Cable				
	Supply cable, for connecting load and logic supply	2.5	**538 914**	**KPWR-MC-1-SUB-15HC-2,5**
		5	**538 915**	**KPWR-MC-1-SUB-15HC-5**
		10	**538 916**	**KPWR-MC-1-SUB-15HC-10**
	Motor cable, for connecting motor and controller	2.5	**539 489**	**KMTR-LAC-S50HC-S50HC-2,5**
		5	**539 490**	**KMTR-LAC-S50HC-S50HC-5**
		10	**539 491**	**KMTR-LAC-S50HC-S50HC-10**
	Control cable, for I/O connection to any controller	2.5	**538 919**	**KES-MC-1-SUB-15-2,5**
		5	**538 920**	**KES-MC-1-SUB-15-5**
		10	**538 921**	**KES-MC-1-SUB-15-10**
	Programming cable, for parameterisation and commissioning via RS232 interface using FCT software	2.5	**537 926**	**KDI-MC-M8-SUB-9-2,5**
Centre supports				
	For mounting controller		**160 909**	**MUP-8/12**

Ordering data						
	Brief description	Input voltage range [V AC]	Nominal output voltage [V DC]	Nominal output current [A]	Part No.	Type
Power supply unit						
	Power supply for motor controller	100 ... 240	48	5	**542 403**	**SVG-1/230VAC-48VDC-5A**
		100 ... 240	48	10	**542 404**	**SVG-1/230VAC-48VDC-10A**
		400 ... 500	48	20	**542 405**	**SVG-3/400VAC-48VDC-20A**

Ordering data – Documentation and software				
	Brief description	Language	Part No.	Type
	Documentation package is included with the motor controller. The package comprises: – User documentation – Configuration package FCT (Festo configuration tool) in the languages DE, EN	DE, EN, ES, FR, IT, SV	**542 004**	**P.BP-SFC-LAC**
	Description of SFC-LAC with I/O interface. User documentation in paper form is not included in the scope of delivery for the motor controller.	DE	**540 547**	**P.BE-SFC-LAC-IO-DE**
		EN	**540 548**	**P.BE-SFC-LAC-IO-EN**
		ES	**540 549**	**P.BE-SFC-LAC-IO-ES**
		FR	**540 550**	**P.BE-SFC-LAC-IO-FR**
		IT	**540 551**	**P.BE-SFC-LAC-IO-IT**
		SV	**540 552**	**P.BE-SFC-LAC-IO-SV**

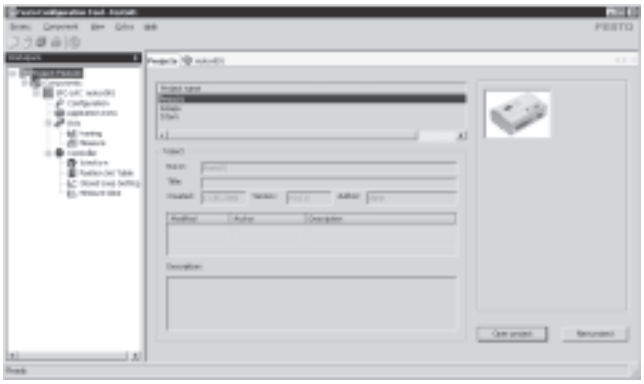
Motor controllers SFC-LAC

Technical data

FESTO

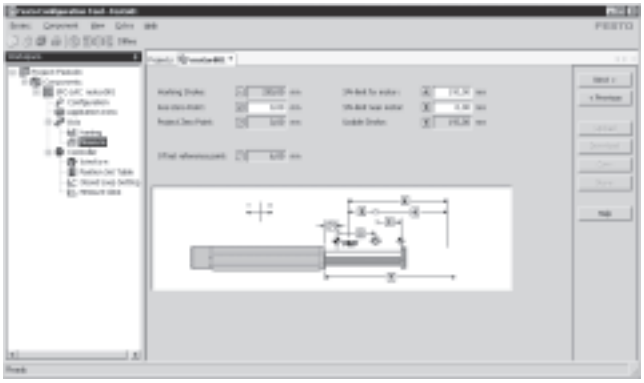
FCT software – Festo configuration tool

Software platform for electrical drives from Festo



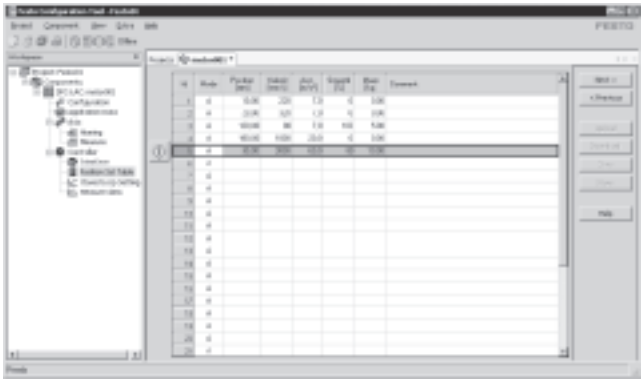
- All the drives in a system can be managed and archived in a common project
- Project and data management for all supported device types
- Simple to use thanks to graphically supported parameter entry
- Universal mode of operation for all drives
- Working offline at your desk or online at the machine

Mechanical reference positions and limit positions



- Reference positions can be either edited or taught in
- Flexible adaptation to installation conditions
- Settings are displayed clearly

Position set table



- 31 position sets ensure flexibility in positioning
- Absolute or relative positioning values can be used
- The following parameters can be set flexibly for each application:
  - Position
  - Speed
  - Acceleration
  - Braking ramps
- Complete function test